Appl. No. 09/883,554 Amdt. Dated 01/06/2004 Reply to Office action of October 15, 2003

## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

- 1. (Cancelled).
- 2. (Currently Amended) The method of claim 31, wherein the at least one non-data bearing carrier is a pilot tone.
  - 3. (Currently Amended) <u>A The-method of claim 1, wherein the comprising:</u>

identifying of the at least one carrier of a plurality of carriers is in the a non-data bearing state, further-includinges

receiving information as to which carriers of the plurality of carriers are to be in a non-data bearing state<sub>3</sub>; and

selecting the at least one non-data bearing carrier based on the information; and modulating the at least one non-data bearing carrier with random data.

- 4. (Original) The method of claim 3, wherein the at least one non-data bearing carrier is used for a function besides data transmission including channel characterization.
- 5. (Original) The method of claim 4, wherein the at least one non-data bearing carrier is used for one of synchronization, carrier recovery and timing recovery.
- 6. (Currently Amended) The method of claim <u>3</u>1, wherein prior to modulating the at least one non-data bearing carrier, the method further comprises producing the random data as a pseudo-random bit stream.
- 7. (Currently Amended) The method of claim 31, wherein the modulating of the at least one non-data bearing carrier is performed in accordance with Orthogonal Frequency Division Multiplexing (OFDM).

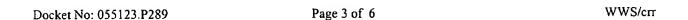


8. (Currently Amended) A The method of claim 1, wherein the comprising:

identifying of the at least one carrier of a plurality of carriers in the a non-data bearing state, comprises: receiving a carrier map from a remotely located system, the carrier map is produced at the system in response to conducting channel estimation analysis on the plurality of carriers to indicate which carriers are unreliable; and

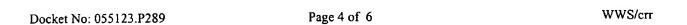
modulating the at least one non-data bearing carrier with random data.

- 9. (Original) The method of claim 8, wherein the carrier map indicates which of the plurality of carriers is deemed to be in an unreliable state.
  - 10. (Original) A multi-carrier modulation system comprising:
  - a feedback link;
- a multiplexer unit coupled to the feedback link, the multiplexing unit, including input ports and output ports, to receive as input a transmission data and a random data and, for each output port, to transmit one of the transmission data and the random data based on information transmitted over the feedback link; and
  - a modulator to modulate a non-data bearing carrier with the random data.
- 11. (Original) The multi-carrier modulation system of claim 10, wherein the modulator further outputs a multi-carrier modulated signal inclusive of the modulated, non-data bearing carrier.
- 12. (Original) The multi-carrier modulation system of claim 10, wherein the modulator to modulate a plurality of carriers that correspond in number to a number of output ports.
- 13. (Original) The multi-carrier modulation system of claim 11, wherein the modulator modulates the non-data bearing carrier with the random data when the information indicates that the non-data bearing carrier is unreliable.





- 14. (Original) The multi-carrier modulation system of claim 13, wherein non-data bearing carrier is determined to be unreliable through prior analysis of the carrier at a receiver using channel estimation.
- 15. (Original) The multi-carrier modulation system of claim 10 further comprising a random bit generator coupled to a first input port of the input ports.
- 16. (Original) The multi-carrier modulation system of claim 10 further comprising a pseudo-random bit generator coupled to a first input port of the input ports.
- 17. (Original) The multi-carrier modulation system of claim 10, wherein the modulator performs modulation in accordance with an Orthogonal Frequency Division Multiplexing (OFDM) modulation scheme.
- 18. (Original) The multi-carrier modulation system of claim 11, wherein the feedback link enables receipt of the information from a remotely located receiver system receiving the multi-carrier modulated signal.
  - 19. (Original) A network comprising:
  - a system coupled to a first link; and
- a first multi-carrier modulation (MCM) system in communication with the network transceiver over a second link, the first MCM system to identify at least one carrier of a plurality of carriers is in a non-data bearing state based on feedback information provided by the system and to modulate the at least one non-data bearing carrier with random data.
- 20. (Original) The network of claim 19, wherein the first link is an Alternating Current (AC) power line.
- 21. (Original) The network of claim 20, wherein the system is a network transceiver for routing data over the AC power line.





Appl. No. 09/883,554 Amdt. Dated 01/06/2004 Reply to Office action of October 15, 2003

- 22. (Original) The network of claim 19, wherein the system is a second multi-carrier modulation (MCM) system.
- 23. (Original) The network of claim 19, wherein the first MCM system comprises: a multiplexer unit in communication with the system, the multiplexing unit, including input ports and output ports, to receive as input a transmission data and a random data and, for each output port, to transmit one of the transmission data and the random data based on the feedback information provided by the system; and

a modulator to modulate the at least one non-data bearing carrier with the random data

- 24. (Original) The network of claim 19, wherein the first MCM system is a modem.
- 25. (Original) The network of claim 19, wherein the first MCM system is a computer with wireless connectivity.
  - 26. (Cancelled).
  - 27. (Cancelled).

Docket No: 055123.P289

Prid